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Date of Deposit: 14 January 2005

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Della Revecho

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Cahill, et al.

Docket No.: AOL0095

Serial No: 10/772,843

Art Unit: Unassigned

Filed: 2/4/2004

Examiner: Unassigned

Title: AFFILIATIONS WITHIN SINGLE SIGN-ON SYSTEMS

14 January 2005

MAIL STOP: Office of Petitions
P O Box 1450
Alexandria, VA 22313-1450

PETITION FOR CORRECTION OF FILING DATE

The Applicant requests that the filing date of the above-referenced application be corrected due to an error made by the Patent Office. The Office has omitted Figures 1, 2 and 3 of the filed application.

The application was mailed via U.S. Express Mail including Figures 1-3. A copy of the application as filed, including all figures & IDS documents are enclosed along with the copy of the PTO date stamped Return Postcard, confirming receipt of all documents filed on 2/04/2004.

The Applicant requests that the filing date be corrected to 04 February 2004 since the date stamped postcard verifies receipt of the (3) three sheets of figures, by the PTO

The Commissioner is hereby authorized to charge the Petition Fee of \$130 and any other fees to the Deposit Account 07-1445 (Order No. AOL0095). This paper is provided in duplicate.

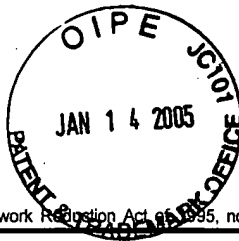
Respectfully Submitted,

Julia A. Thomas
Reg. No. 52,283

Customer No. 22862

01/21/2005 AWONDAF1 00000019 071445 10772843
01 FC:1462 400.00 DA

~~01/21/2005 AWONDAF1 00000017 071445 10772843~~
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PTO/SB/92 (12-97)
Approved for use through 9/30/00. OMB 0651-0031
Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

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Docket No. AOL0095

on 14 January 2005

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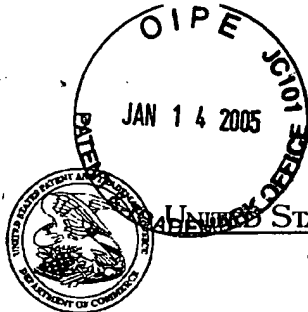
Della Revecho

Typed or printed name of person signing Certificate

Note: Each paper must have its own certificate of mailing, or this certificate must identify each submitted paper.

Attached to this coversheet please find the following documents:

- Copy of Notice of Incomplete NonProvisional Application (2 pages);
- Petition for Correction of Filing Date (1 page in duplicate)
- Copy of the return postcard and Express Mail stamped by the USPTO on 2/4/04 (1 page);
- Copy of the Entire Application as Filed on 2/4/04 (31 pages);
- Return Postcard

COPY

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
 United States Patent and Trademark Office
 Address: COMMISSIONER FOR PATENTS
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 Alexandria, Virginia 22313-1450
 www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/772,843	02/04/2004	Conor Cahill	AOL0095

CONFIRMATION NO. 6050

22862
 GLENN PATENT GROUP
 3475 EDISON WAY, SUITE L
 MENLO PARK, CA 94025

FORMALITIES LETTER



OC000000013483213

Date Mailed: 08/09/2004

NOTICE OF INCOMPLETE NONPROVISIONAL APPLICATION**FILED UNDER 37 CFR 1.53(b)**

A filing date has NOT been accorded to the above-identified application papers for the reason(s) indicated below.

All of the items noted below **and a newly executed oath or declaration covering the items must** be submitted within **TWO MONTHS** of the date of this Notice, unless otherwise indicated, or proceedings on the application will be terminated (37 CFR 1.53(e)). Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

The filing date will be the date of receipt of all items required below, unless otherwise indicated. Any assertions that the item(s) required below were submitted, or are not necessary for a filing date, must be by way of petition directed to the attention of the Office of Petitions accompanied by the \$130.00 petition fee (37 CFR 1.17(h)). If the petition states that the application is entitled to a filing date, a request for a refund of the petition fee may be included in the petition. Petitions should be mailed to: Mail Stop Petitions, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

- The application was deposited without drawings. 35 U.S.C. 113 (first sentence) requires a drawing "where necessary for the understanding of the subject matter sought to be patented." *Applicant should reconsider whether the drawings are necessary under 35 U.S.C. 113 (first sentence).*
- The oath or declaration is unsigned.

Replies should be mailed to: Mail Stop Missing Parts
 Commissioner for Patents
 P.O. Box 1450
 Alexandria VA 22313-1450

ACKNOWLEDGE RECEIPT

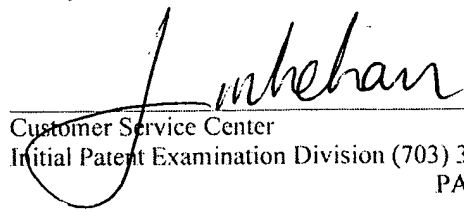
AUG 12 2004

GLENN PATENT GROUP

*A copy of this notice **MUST** be returned with the reply.*

DOCKETEDBy: Date: 8/16/04

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Initial Patent Examination Division (703) 308-1202

PART 1 - ATTORNEY/APPLICANT COPY



United States Patent and Trademark Office (USPTO) Acknowledgement

Please acknowledge receipt of the enclosed document, listed below, by imprinting the USPTO date stamp in the space indicated and returning this postcard to the addressee indicated on the reverse.

Application of: Cahill, et al.

Title: Affiliations Within Single Sign-On Systems

Express Mail No: EV 378719946 US

Application No: Unassigned

Filing Date: Herewith (2/4/2004)

Atty. Docket No: AOL0095

Date Mailed: 2/4/2004

Enclosed are the following:

1. Certificate of Express Mail (1 page)
2. Utility Patent Application Transmittal (1 page)
3. Fee Transmittal (1 page, in duplicate)
4. (19) Pages of Specification, Claims, and Abstract
5. (3) Sheets of Formal Drawings
6. Combined Declaration and Power of Attorney (2 pages)

16018 U.S. PTO
10/772843



7. IDS: 1449 Form and cited references

Fee: \$824.00

Payment Type: Charge to USPTO Deposit Account



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<input type="checkbox"/> WAIVER OF SIGNATURE (Domestic Only) Additional merchandise insurance is void if waiver of signature is requested. I wish delivery to be made without obtaining signature of addressee or addressee's agent (if delivery employee judges that addresser or addressee's agent (if delivery employee judges that location) and I authorize that delivery employee's signature constitute valid proof of delivery.		
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FROM: (PLEASE PRINT) GLINN PATENT GROUP 3475 EDISON WAY STE L MENLO PARK CA 94025-1821	PHONE <u>(650) 474 8400</u>
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TO: (PLEASE PRINT) MAIL STOP PATENT APPLICATIONS ASSISTANT COMMISSIONER FOR PATENTS PO BOX 1450 ALEXANDRIA VA 22313-1450	PHONE ()
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Glenn Patent Group
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Customer Number 22,862

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Certificate of Transmission Under 37 C.F.R. §1.10

Express Mail Label EV 378719946 US Date of Deposit: February 4, 2004

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated above and is addressed to the Commissioner of Patents and Trademarks, Mail Stop Patent Application, P.O. Box 1450, Alexandria, VA 22313-1450.

Date of
Deposit:

2/4/2004

Name of Person
Making the Deposit:

Rhonda Dunn

Signature of the Person
Making the Deposit:

Rhonda Dunn

In re Application of: Cahill, et al.

Docket No.: AOL0095

Serial No: Unassigned

Art Unit: Unassigned

Filed: Herewith (2/4/2004)

Examiner: Unassigned

Title: AFFILIATIONS WITHIN SINGLE SIGN-ON SYSTEMS

DATE: FEBRUARY 4, 2004

To: United States Patent and Trademark Office
Attn: Mail Stop Patent Application

Re: TRANSMITTAL UTILITY PATENT APPLICATION

Attached to this coversheet please find the following documents:

1. Utility Patent Application Transmittal (1 page);
2. Fee Transmittal (1 page, in duplicate);
3. Combined Declaration and Power of Attorney (2 pages);
4. (19) Pages of Specification, Claims, and Abstract;
5. (3) Sheets of Formal Drawings;
6. Combined Declaration and Power of Attorney (2 pages);
7. IDS, 1449 Form, and cited references
8. Return Postcard

Fee: \$824.00 Payment Type: Charge to USPTO Deposit Account

UTILITY PATENT APPLICATION TRANSMITTAL

(Only for new nonprovisional applications under 37 CFR 1.53(b))

Attorney Docket No.	AOL0095
First Inventor	Cahill, et al.
Title	Affiliations Within Single Sign-On Systems
Express Mail Label No.	EV 378719946 US

APPLICATION ELEMENTS

See MPEP chapter 600 concerning utility patent application contents.

ADDRESS TO: Mail Stop Patent Application
Commissioner for Patents
P.O. Box 1450
Alexandria VA 22313-1450

1. ☒ Fee Transmittal Form (e.g., PTO/SB/17)
(Submit an original and a duplicate for fee processing)
2. ☒ Applicant claims small entity status.
See 37 CFR 1.27.
3. ☒ Specification [Total Pages 19]
(preferred arrangement set forth below)
 - Descriptive title of the invention
 - Cross Reference to Related Applications
 - Statement Regarding Fed sponsored R & D
 - Reference to sequence listing, a table, or a computer program listing appendix
 - Background of the Invention
 - Brief Summary of the Invention
 - Brief Description of the Drawings (if filed)
 - Detailed Description
 - Claim(s)
 - Abstract of the Disclosure
4. ☒ Drawing(s) (35 U.S.C. 113) [Total Sheets 3]
5. Oath or Declaration [Total Sheets 2]
 - a. ☐ Newly executed (original or copy)
 - b. ☐ Copy from a prior application (37 CFR 1.63(d))
(for continuation/divisional with Box 18 completed)
 - i. ☐ **DELETION OF INVENTOR(S)**
Signed statement attached deleting inventor(s)
name in the prior application, see 37 CFR 1.63(d)(2) and 1.33(b).
6. ☐ Application Data Sheet. See 37 CFR 1.76

7. ☐ CD-ROM or CD-R in duplicate, large table or Computer Program (Appendix)
8. Nucleotide and/or Amino Acid Sequence Submission (if applicable, all necessary)
 - a. ☐ Computer Readable Form (CRF)
 - b. Specification Sequence Listing on:
 - i. ☐ CD-ROM or CD-R (2 copies); or
 - ii. ☐ Paper
 - c. ☐ Statements verifying identity of above copies

ACCOMPANYING APPLICATION PARTS

9. ☐ Assignment Papers (cover sheet & document(s))
10. ☐ 37 CFR 3.73(b) Statement ☒ Power of Attorney
(when there is an assignee)
11. ☐ English Translation Document (if applicable)
12. ☒ Information Disclosure Statement (IDS)/PTO-1449 ☒ Copies of IDS Citations
13. ☐ Preliminary Amendment
14. ☒ Return Receipt Postcard (MPEP 503)
(Should be specifically itemized)
15. ☐ Certified Copy of Priority Document(s)
(if foreign priority is claimed)
16. ☐ Nonpublication Request under 35 U.S.C. 122 (b)(2)(B)(i). Applicant must attach form PTO/SB/35 or its equivalent.
17. ☒ Other: Certificate of Mailing

18. If a CONTINUING APPLICATION, check appropriate box, and supply the requisite information below and in the first sentence of the specification following the title, or in an Application Data Sheet under 37 CFR 1.76:

☐ Continuation ☐ Divisional ☐ Continuation-in-part (CIP) of prior application No.: _____

Prior application information:

Examiner _____

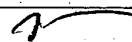
Art Unit: _____

For CONTINUATION OF DIVISIONAL APPS only: The entire disclosure of the prior application, from which an oath or declaration is supplied under Box 5b, is considered a part of the disclosure of the accompanying continuation or divisional application and is hereby incorporated by reference. The incorporation can only be relied upon when a portion has been inadvertently omitted from the submitted application parts.

19. CORRESPONDENCE ADDRESS

☒ Customer Number: 22862 OR ☐ Correspondence address below

Name			
Address			
City	State	Zip Code	
Country	Telephone	Fax	

Name (Print/Type)	Michael A. Glenn	Registration No. (Attorney/Agent)	30,176
Signature		Date	February 4, 2004

This collection of information is required by 37 CFR 1.53(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Mail Stop Patent Application, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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Approved for use through 07/31/2006. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 824.00

Complete if Known

Application Number	Unassigned
Filing Date	Filed Herewith
First Named Inventor	Cahill, et al.
Examiner Name	Unassigned
Art Unit	Unassigned
Attorney Docket No.	AOL0095

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit Account Number
07-1445
Deposit Account Name
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The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

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FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	770.00
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	
SUBTOTAL (1)			(\$) 770.00

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

Total Claims	Extra Claims	Fee from below	Fee Paid
Independent Claims 23	-20** = 3	18.00	54.00
Multiple Dependent Claims 3	-3** = 0	86.00	0.00
			0.00

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$) 54.00

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1051 130	2051 65	Surcharge - late filing fee or oath
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet
1053 130	1053 130	Non-English specification
1812 2,520	1812 2,520	For filing a request for ex parte reexamination
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action
1251 110	2251 55	Extension for reply within first month
1252 420	2252 210	Extension for reply within second month
1253 950	2253 475	Extension for reply within third month
1254 1,480	2254 740	Extension for reply within fourth month
1255 2,010	2255 1,005	Extension for reply within fifth month
1401 330	2401 165	Notice of Appeal
1402 330	2402 165	Filing a brief in support of an appeal
1403 290	2403 145	Request for oral hearing
1451 1,510	1451 1,510	Petition to institute a public use proceeding
1452 110	2452 55	Petition to revive - unavoidable
1453 1,330	2453 665	Petition to revive - unintentional
1501 1,330	2501 665	Utility issue fee (or reissue)
1502 480	2502 240	Design issue fee
1503 640	2503 320	Plant issue fee
1460 130	1460 130	Petitions to the Commissioner
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)
1806 180	1806 180	Submission of Information Disclosure Stmt
8021 40	8021 40	Recording each patent assignment per property (times number of properties)
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))
1801 770	2801 385	Request for Continued Examination (RCE)
1802 900	1802 900	Request for expedited examination of a design application

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$) 0.00

SUBMITTED BY

Name (Print/Type) Michael A. Glenn

Signature *h* Registration No. (Attorney/Agent) 30,176 Telephone 650-474-8400

Date February 4, 2004

WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.

This collection of information is required by 37 CFR 1.17 and 1.27. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS.

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

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Y

DECLARATION FOR PATENT APPLICATION

As a below named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name;

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Affiliations Within Single Sign-On Systems

the specification of which (check one) X is attached hereto, or was filed on as Application Serial No. and was amended on (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, Section 1.56(a).

=====

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed
Yes No

Number Country Day/Month/Year Filed

Number Country Day/Month/Year Filed

=====

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith:

MICHAEL A. GLENN, Reg. No. 30,176
JAMES R. BRAMSON, Reg. No. 41,632
DONALD M. HENDRICKS, Reg. No. 40,355
CHRISTOPHER PEIL, Reg. No. 45,005
IVY Y. MEI, Reg. No. 46,925
JULIA THOMAS, Reg. No. 52,283

SEND CORRESPONDENCE TO:

GLENN PATENT GROUP, 3475 Edison Way, Suite L, Menlo Park, CA 94025

=====

I hereby claim the benefit under Title 35, United States code, Section 120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, Section 112, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, Section 1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

Application Ser. No. Filing Date Status: Patented, Pending, Abandoned

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Full name of first or sole inventor: Conor Cahill

Inventor's signature _____ Date _____

Residence 44900 Prentice Drive, Dulles, Virginia 20166

Post Office Address Same

Citizenship United States of America

Full name of second joint inventor: Christopher Newell Toomey

Inventor's signature _____ Date _____

Residence 23694 Black Oak Way, Cupertino, California 95014

Post Office Address Same

Citizenship United States of America

Full name of third inventor: Andrew An Feng

Inventor's signature _____ Date _____

Residence 1035 Colony Hills Lane, Cupertino, California 95014

Post Office Address Same

Citizenship United States of America

Affiliations Within Single Sign-On Systems

BACKGROUND OF THE INVENTION

5

TECHNICAL FIELD

The invention relates to services that depend upon a federation or association operation. More particularly, the invention relates to a service infrastructure that
10 enables users to manage the sharing of their personal information across identity providers and service providers, as well as the use of personalized services.

DESCRIPTION OF THE PRIOR ART

15 A single sign-on service allows a user to access various secure domains with a single act of authentication. Examples of single sign-on services include:

- Microsoft®. NET Passport, which is one of the largest online authentication systems in the world, with more than 200 million accounts performs more than
20 3.5 billion authentications each month. Passport participating sites include Nasdaq, McAfee, Expedia.com, eBay, Cannon, Groove, Starbucks, MSN® Hotmail, MSN Messenger, and many more. Passport single sign-in service allows users to create a single set of credentials that can be used to access any site that supports a Passport service. The objective of the Passport single sign-in
25 service is to increase customer satisfaction by allowing Web site visitors easy

access without the frustration of repetitive registrations and forgotten passwords;
and

- America Online's Screen Name Service, which is a single sign in service and
5 registration helper that benefits AOL audiences and all other online uses. The
Screen Name Service lets a user create a single, consistent Screen Name, as a
personal "ID", which can be used to safely, securely, and conveniently access
and personalize sites across the Web. The Screen Name Service solves the
frustrating experience of balancing multiple accounts, identities, and passwords
10 for all the places visited on the Web. With the service, a user can have a single
Screen Name and password to use to access and personalize sites across the
Web. Whenever a user is online, it is only necessary to sign in once with your
personal Screen Name to the AOL service or directly at a participating Web site
and then visit popular Web sites without having to enter a different username and
15 password over and over.

- The Liberty Alliance Project (see <http://www.projectliberty.org/>), which is a
consortium of more than 160 technology and consumer-facing organizations, that
was formed in September 2001 to establish an open standard for federated
20 network identity.

Federated identity answers many of the inefficiencies and complications of network
identity management that both businesses and consumers face in today's world.
Federated identity allows users to link elements of their identity between accounts
25 without centrally storing all of their personal information.

In the context of federated identity, it would be advantageous to provide a type of entity that could be used to implement single sign-on functionality within a portal site, *i.e.* an affiliation comprising a group of service providers that have chosen to act as a single entity on the network from the point of view of authentication, federation, and authorization. It would also be advantageous if such system allowed a user to associate with an affiliation, or group of providers, without having to perform a separate transaction for each and every sign-on in a network.

SUMMARY OF THE INVENTION

The invention provides an affiliation within a single sign-on system, which affiliation comprises a group of service providers that have chosen to act as a single entity on the network from the point of view of authentication, federation, and authorization. This type of entity is used to implement functionality within a portal site, such as the Yahoo (see <http://www.yahoo.com>) portal with a Travelocity (see <http://www.travelocity.com/>) travel section that acts as part of Yahoo and not as part of Travelocity.

In the preferred embodiment, there is an owner of the affiliation, *e.g.* Yahoo, that is responsible for maintaining a list that shows which service providers are members of the affiliation, *e.g.* Travelocity, as well as any control structure or meta-data associated with the affiliation. Each affiliation must have an identifier that is unique within the single sign-on system in which the affiliation is defined. User actions associated with the affiliation apply to all entities within the affiliation.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a block schematic diagram that shows service providers accessing services within a federated network;

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Fig. 2 is a block schematic diagram that shows system entities and roles within a federated network; and

Fig. 3 is a block schematic diagram that shows service flow with affiliation within a federated network according to the invention.

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DETAILED DESCRIPTION OF THE INVENTION

The invention provides an affiliation within a single sign-on system, which affiliation comprises a group of service providers that have chosen to act as a single entity on the network from the point of view of authentication, federation, and authorization.

This type of entity is used to implement functionality within a portal site, such as the Yahoo (see <http://www.yahoo.com>) portal with a Travelocity (see <http://www.travelocity.com/>) travel section that acts as part of Yahoo and not as part of Travelocity. While the invention herein is discussed in connection with the Liberty Alliance Project, those skilled in the art will appreciate that the invention is applicable to any network where such functions as authentication, federation and/or authorization are provided.

In the preferred embodiment, there is an owner of the affiliation, *e.g.* Yahoo, that is responsible for maintaining a list that shows which service providers, *e.g.* Travelocity, are members of the affiliation, as well as any control structure or meta-data associated with the affiliation. For purposes of the discussion herein, meta-data comprises but are not limited to the collection of data, *e.g.* addresses, entry points, security, keys, option choices, etc., that the party must obtain from a second party to be able to interact with the second party. For example, the Internet address of the entry point for a web service is a piece of meta-data. Each affiliation must have an identifier that is unique within the single sign-on system in which the affiliation is defined. User actions associated with the affiliation apply to all entities within the affiliation.

The invention applies to any single sign-on system or other system that allows multiple points of access for a user who may have more than one identity for authorization of the user and, optionally, designees of the user, for each of said multiple points of access. Here, such trust as is established with said user at a point
5 of access is shared among multiple providers for purposes of authentication and authorization, even if the point of access does not share common authentication requirements, by the virtue of an affiliation between services at said point of access.

The presently preferred embodiment of the invention is implemented within an
10 architecture that provides a web services-based service infrastructure and that enables users to manage the sharing of their personal information across identity providers and service providers, as well as the use of personalized services. For example, a user is able to authorize a service provider to access his shipping address while processing a transaction. Principals can also use sophisticated clients
15 that support web services, in addition to traditional browser-oriented user agents.

As used herein, the term "web services" means Simple Object Access Protocol (SOAP: see <http://www.w3.org/TR/SOAP/>) over HTTP calls. SOAP is a lightweight protocol for exchange of information in a decentralized, distributed environment. It is
20 an XML-based protocol that consists of three parts: an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application-defined data types, and a convention for representing remote procedure calls and responses. HTTP is well known in the art and is not discussed at length herein. The use of SOAP over HTTP
25 calls is discussed herein only for purposes of example, and not by way of limitation.

Those skilled in the art will appreciate that the invention herein is applicable to any service or application.

Architectural Components

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Fig. 1 is a block schematic diagram that shows service providers accessing services within a federated network. The preferred embodiment comprises an architecture that comprises the components described in below:

10 **System Entities**

Identity and service providers, user/principal, user agent, etc. System entities assume roles.

15 There are three primary system entities:

- **Identity Provider (IDP)** authenticates, and vouches for, principals.
- **Service Provider (SP)** provides service to requestors.

20

- **Principals** are entities that can acquire a federated identity, and be authenticated and vouched for by an identity provider. For example, principals may comprise a user using a user agent, *e.g.* either a web browser or a smart web services client.

Services

A **service** is a grouping of common functionality. For example, a core profile service handles all interactions concerning user profile information. Services typically offer one or more methods that callers can use to manipulate the information managed by the service, and are typically scoped in the context of a particular principal

Schemas

Schemas describe the syntax and relationships of data. Each service defines a schema for its data. For example, the profile service defines schema elements such as "name," "address," "phone number," etc.

As shown in Figure 1, a principal 16 logs into an identity provider 14 and authenticates at a service provider 12 with an identity provider assertion. The service provider requests a service descriptor and assertion for service from the identity provider and the service is invoked.

System Entity Roles

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Fig. 2 is a block schematic diagram that shows system entities and roles within a federated network. System entities may assume one or more roles, as shown below:

Web Service Provider (WSP)

Hosts personal web services, such as a profile service. WSC's invoke web service
5 methods at WSPs.

Web Service Consumer (WSC)

With the appropriate authentication and authorization, a WSC is able to access the
user's personal web services by communicating with the Web Service Provider's
10 endpoint. Web Service Consumers can be either hosted on an SP's server or on the
user's device.

Discovery Service (DS)

15 A service typically hosted by an IDP that enables WSC's to discover service
endpoint information regarding a user's personal web services.

As shown in Figure 2, a principal 16 logs into an identity provider 14 and
authenticates at a federated service provider 12 with an identity provider assertion
20 and a discovery service descriptor. A web service consumer 22 associated with the
service provider requests a service descriptor and assertion for service from the
discovery service 24. The web service consumer 22 invokes the service with a
service assertion via a web service provider 26.

Affiliations Within A Single Sign-On System

Fig. 3 is a block schematic diagram that shows service flow with affiliation within a federated network according to the invention. For purposes of the discussion herein, an affiliation is defined as a group of SPs that have chosen to act as a single entity on the network from the point of view of authentication, federation and authorization. The invention establishes a single sign-on system within which such affiliation may cooperate. As discussed above, this type of entity is used to implement federation functionality, for example, within a portal site, such as a Yahoo portal with, for example, a Travelocity travel section that acts as a part of Yahoo and not as a part of Travelocity.

Another example of an application to which the invention may be put comprises groups of companies that have different user entry points, but that still want to act as a single entity, such as AOL/Time Warner sites si.com and cnn.com, where federating to the AOL Time Warner affiliation federates the user to each site within the affiliation.

Figure 3 shows the basic operation of an affiliation. As shown in Figure 3, a principal 16 logs into an identity provider 14. Here, the principal visits a first service provider SP1 12a and federates to the affiliation 30 defined service providers SP1 12a and SP2 12b. While only two service providers are shown in Figure 3, those skilled in the art will appreciate that any number of service providers may form part of an affiliation.

The principal may then visit any other member of the affiliation, *e.g.* SP2 12b, and with a single sign on request return SP2's assertion with affiliate information.

A web service consumer 22 associated with a service provider, in Figure 3 service provider SP2 12b, requests a service descriptor and assertion for service from the discovery service 24, presenting SP2's assertion with affiliate information. The discovery service checks SP2's affiliation and generates a service assertion based upon SP2's affiliation. The web service consumer 22 invokes the service with a service assertion via a web service provider 26.

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Rules/Policies

In the preferred embodiment, there is an owner of the affiliation that is responsible for maintaining a list that is available to the IDP and the DS showing which SPs are members of the affiliation, as well as any control structure or meta-data associated with the affiliation. Each affiliation preferably has a URL-based identifier that is unique within the single sign-on system in which the affiliation is defined.

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SPs/WSCs within the single sign-on system may be members of multiple affiliations, but they can only act with a single affiliation for any given transaction. For example, Travelocity could say that they were acting as part of the Yahoo Portal, or they could say that they were acting as part of the AOL Portal, but they could not claim to be acting as part of both at the same time. It is up to the SP to determine which affiliation that they are acting with at any given moment.

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The IDP/DS verify that the claimed affiliation membership exists and is valid prior to allowing the transaction to proceed.

User actions associated with the affiliation apply to all entities within the affiliation, *i.e.* a user federating with the affiliation automatically federates with all members of the affiliation and a user authorizing access to a service by the federation authorizes access to any member of the affiliation. Note that these actions only apply when the SPs/WSCs are acting as a member of the affiliation.

10 ***Principal Identifiers***

Principal identifiers may have the following semantics (such semantics are readily adapted by those skilled in the art as needed for use in other embodiments of the invention):

1. A name identifier that is unique for any SP<->Affiliation combination. *i.e.* if the same SP using the same SPID requests identity of the user through different affiliations, they receive different, unique IdPProvidedNameIdentifiers. For example, Travelocity, when acting as part of the Yahoo portal, receives a different identifier than Travelocity when acting as part of the AOL portal.

This uniqueness requirement prevents a site from using the IdPProvidedNameIdentifier as a key to share information across different affiliations.

2. A name identifier that is issued for the user by the IDP for each affiliation with which the user federates. This same Identifier is provided to all members of the affiliation when they are acting as a part of the affiliation.

3. A name identifier that is provided by the affiliation, wherein the owner of the affiliation may register an affiliation provided name identifier that is returned, in addition to the IdPProvidedAffiliationNameIdentifier.

The affiliation name identifiers provide a means for sites to handle the automatic federation that take place with all members of the affiliation. For example, when a user federates with AOL Time Warner while at cnn.com, the user likely creates an account within AOL Time Warner's infrastructure. The Affiliation Name Identifier is used when the user goes to SportsIllustrated.com, a member of the AOL Time Warner affiliation, to access that internal account.

Although the invention is described herein with reference to the preferred embodiment, one skilled in the art will readily appreciate that other applications may be substituted for those set forth herein without departing from the spirit and scope of the present invention. Accordingly, the invention should only be limited by the Claims included below.

CLAIMS

1. A method for establishing an affiliation within a single sign-on system, comprising the steps of:

5 defining a group of service providers that act as a single entity on a network for purposes of any of authentication, federation, and authorization;

 defining an owner of said affiliation that is responsible for maintaining a list that shows which service providers are members of said affiliation, as well as any control structure or meta-data associated with said affiliation; and

10 providing a unique identifier for each affiliation within said single sign-on system in which said affiliation is defined.

2. The method of Claim 1, wherein said network comprises:

15 a web services-based service infrastructure in which users manage sharing of their personal information across identity providers and service providers.

3. The method of Claim 2, wherein said web services implement a lightweight protocol for exchange of information in a decentralized, distributed environment.

20 4. The method of Claim 3, wherein said protocol comprises:

 an envelope that defines a framework for describing what is in a message and how to process it, a set of encoding rules for expressing instances of application-defined data types, and a convention for representing remote procedure calls and responses.

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5. An apparatus for establishing an affiliation within a single sign-on system, comprising:

a plurality of principals that can acquire a federated identity and be authenticated and vouched for by an identity provider;

5 an identity provider for authenticating and vouching for principals;

a plurality of service providers that act as a single entity with regard to authentication, federation and authorization to establish a single sign-on system within which such affiliation cooperates; and

10 at least one service associated with each service provider which comprises a grouping of common functionality comprising at least one method that callers can use to manipulate information managed by said service with regard to a particular principal.

6. The apparatus of Claim 5, further comprising:

15 a web service provider for hosting personal web services which invoke web service methods at said web service provider.

7. The apparatus of Claim 6, further comprising:

20 a web service consumer for accessing a user's personal web services by communicating with said web service provider.

8. The apparatus of Claim 7, further comprising:

a discovery service for enabling said web service consumer to discover service information regarding a user's personal web services.

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9. A method for establishing an affiliation within a single sign-on system, comprising the steps of:

defining a group of service providers that act as a single entity on a network for purposes of any of authentication, federation, and authorization;

5 providing a plurality of principals that can acquire a federated identity and be authenticated and vouched for by an identity provider; and

providing an identity provider for authenticating and vouching for principals.

10. The method of Claim 9, further comprising the steps of:

10 a principal logging into said identity provider;

said principal visiting a first service provider and federating to said group; and

said principal then visiting any other service provider within said group.

11. The method of Claim 9, further comprising the step of:

15 defining an owner of said affiliation that is responsible for maintaining a list that shows which service providers are members of said affiliation, as well as any control structure or meta-data associated with said affiliation.

12. The method of Claim 9, further comprising the step of:

20 providing a unique identifier for each affiliation within said single sign-on system in which said affiliation is defined.

13. The method of Claim 9, further comprising the step of:

25 providing a discovery service for enabling a web service consumer to discover service information regarding a user's personal web services.

14. The method of claim 13, further comprising the step of:

providing a web service consumer associated with a service provider for requesting a service descriptor and assertion for service from said discovery service and for presenting an assertion from said other service provider with affiliate
5 information.

15. The method of Claim 14, further comprising the step of:

said discovery service checking said other service provider affiliation and generating a service assertion based upon said other service provider affiliation.

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16. The method of Claim 15, further comprising the step of:

said web service consumer invoking a service with said service assertion via a web service provider.

15 17. The method of Claim 9, wherein said group has an identifier that is unique within a single sign-on system in which said group is defined.

18. The method of Claim 9, wherein service providers within a single sign-on system may be members of multiple groups, but can only act with a single affiliation for any
20 given transaction.

19. The method of Claim 9, wherein a user federating with a group automatically federates with all members of said group.

25 20. The method of Claim 9, wherein a user authorizing access to a service by said federation authorizes access to any member of said group.

21. The method of Claim 9, further comprising the step of:

providing a unique identifier for any service provider/group affiliation. wherein
if a same service provider using a same service provider identity requests an identity
of a user through different group affiliations, said service provider receives different,
5 unique identifiers for each group affiliation.

22. The method of Claim 9, further comprising the step of:

providing a same identifier to all members of said group when they are acting
as a part of said group affiliation.

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23. The method of Claim 9, further comprising the step of:

providing an affiliation name identifier for allowing sites to handle an automatic
federation that take place with all members of said group.

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Affiliations Within Single Sign-On Systems

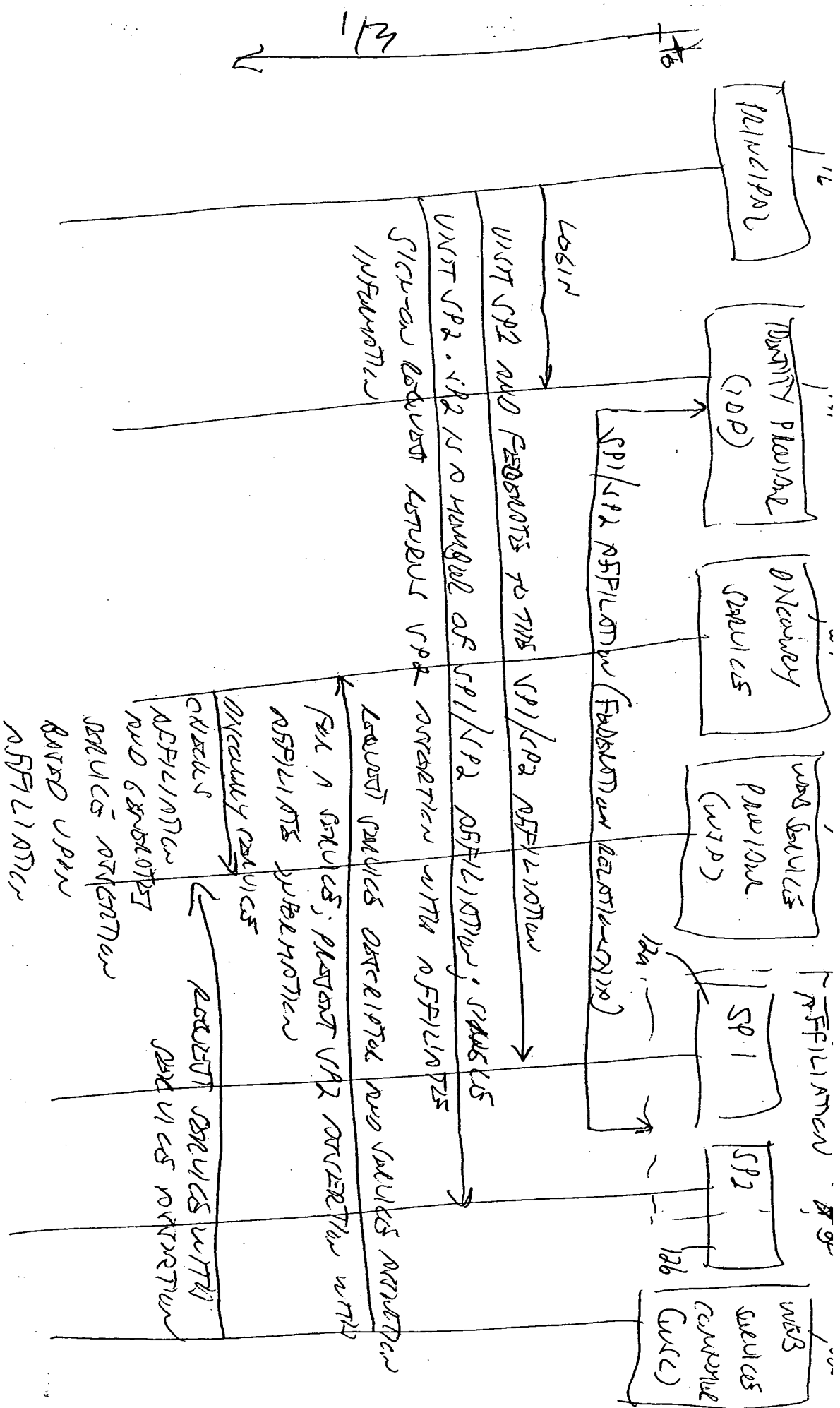
ABSTRACT

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The invention provides an affiliation within a single sign-on system, which affiliation comprises a group of service providers that have chosen to act as a single entity on a network from the point of view of authentication, federation, and authorization. This type of entity is used to implement functionality within a portal site, such as the

10 Yahoo (see <http://www.yahoo.com>) portal with a Travelocity (see <http://www.travelocity.com/>) travel section that acts as part of Yahoo and not as part of Travelocity. In the preferred embodiment, there is an owner of the affiliation that is responsible for maintaining a list that shows which service providers are members of the affiliation, as well as any control structure or meta-data associated with the

15 affiliation. Each affiliation must have an identifier that is unique within the single sign-on system in which the affiliation is defined. User actions associated with the affiliation apply to all entities within the affiliation.



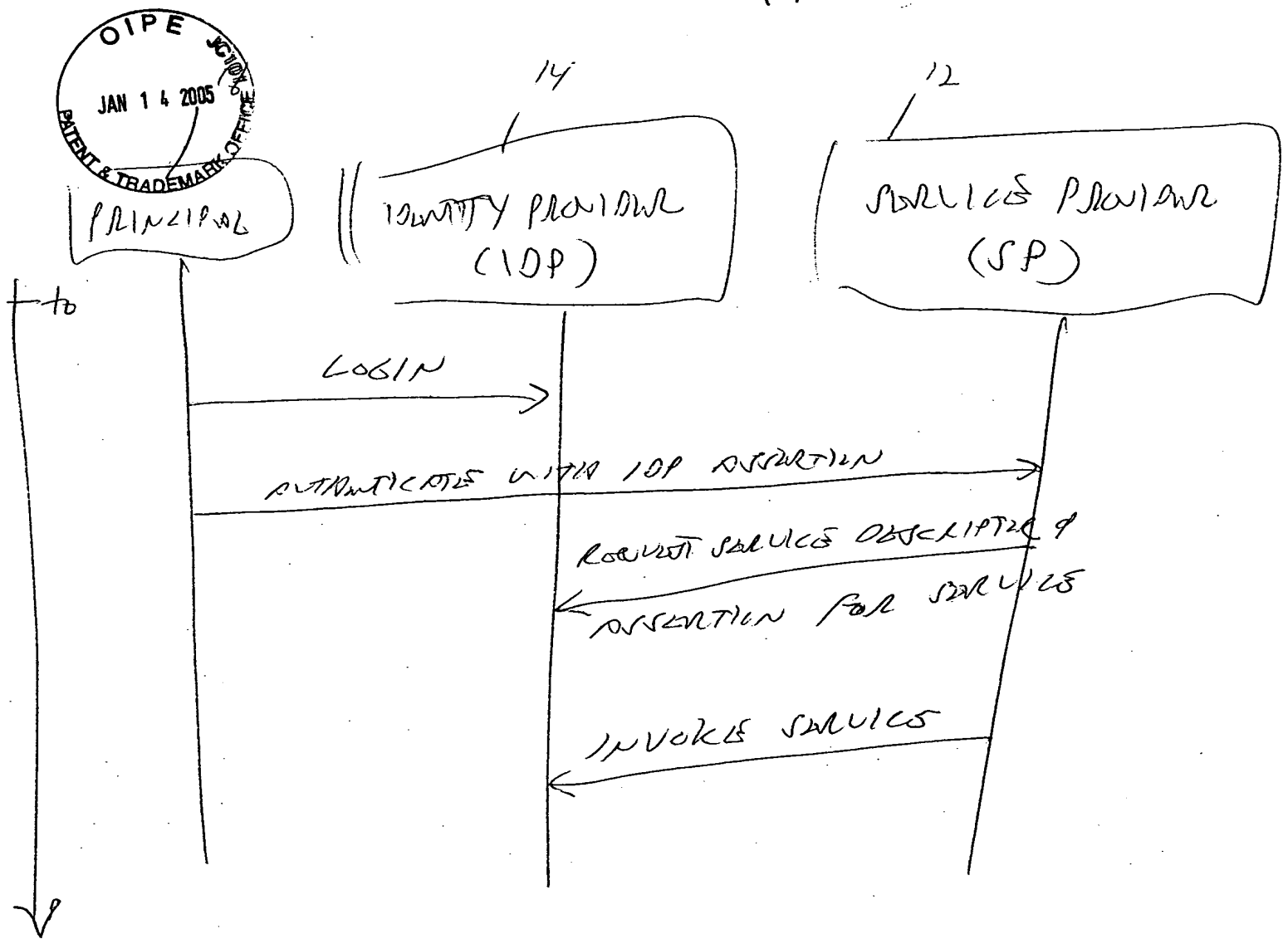


FIGURE 1 (PRICE NET)

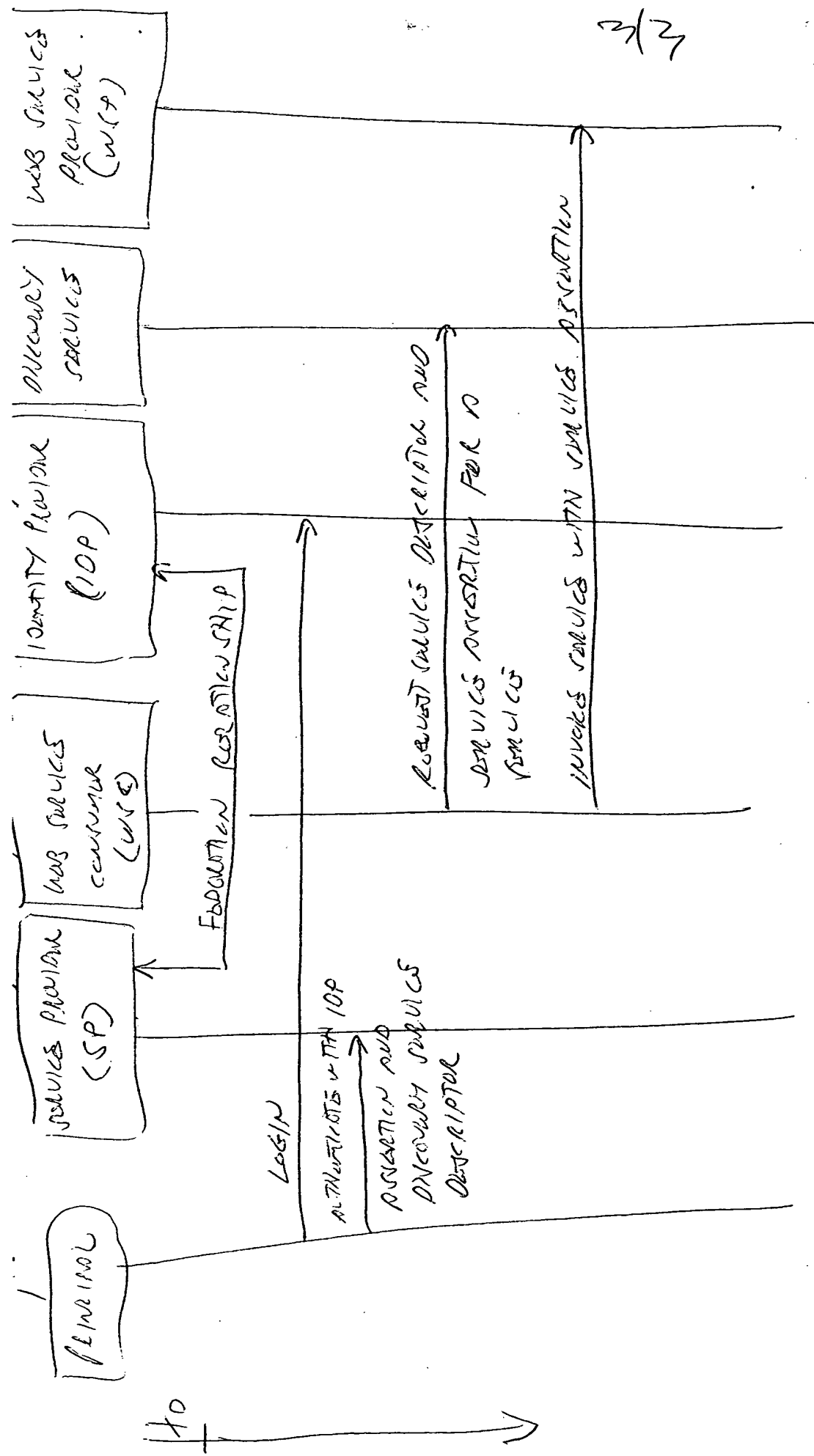


FIGURE 2 (PREF. NET)



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: Cahill, et al.

Serial No. : Unassigned

Filed: Herewith (2/4/2004)

Title: Affiliations Within Single Sign-On Systems

Docket No.: AOL0095

Art Unit: Unassigned

Examiner: Unassigned

February 4, 2004

INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents

Mail Stop IDS

P.O. Box 1450

Alexandria, VA 22313-1450

Sir:

This Information Disclosure Statement is submitted:

- (X) under 37 CFR 1.97(b), or
(within three months of filing national application; or date of entry of international application; or before mailing date of first office action on the merits; whichever occurs last)
- () under 37 CFR 1.97(c) together with either a:
 - () Certification under 37 CFR 1.97(e), or
 - () a \$220.00 fee under 37 CFR 1.17(p), or
(After the CFR 1.97(b) time period, but before final action or notice of allowance, whichever occurs first)
- () under 37 CFR 1.97(d) together with a:
 - () Certification under 37 CFR 1.97(e), and
 - () a \$220.00 fee under 37 CFR 1.17(d)(2)(ii), and
 - () a \$130.00 petition fee set forth in 37 CFR 1.17(i)(1)
(Filed after final action or notice of allowance, whichever occurs first, but before payment of the issue fee)

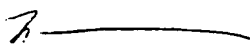
(X) The Commissioner is authorized to charge any additional fees or credit any overpayment to Deposit Account No. 07-1445 (Order No. AOL0095). A copy of this sheet is enclosed for accounting purposes.

(X) Applicant(s) submit herewith Form PTO 1449 -- Information Disclosure Citation together with copies of patents, publications or other information of which applicant(s) are aware, which applicant(s) believe(s) may be material to the examination of this application and for which there may be a duty to disclose in accordance with 37 CFR 1.25.

() A concise explanation of the relevance of foreign language patents, foreign language publications and other foreign language information listed on PTO Form 1449, as presently understood by the individual(s) designated in 37 CFR 156(c) most knowledgeable about the content is given on the attached sheet, or where a foreign language patent is cited in a search report or other action by a foreign patent office in a counterpart foreign application, an English language version of the search report or action which indicates the degree of relevance found by the foreign office is listed on form PTO 1449 and is enclosed herewith.

It is requested that the information disclosed herein be made of record in this application.

Respectfully Submitted,



Michael Glenn
Attorney For Applicant
Reg. No. 30,176

Customer No. 22862

Attorney Docket No. AOL0095



Form 1449 (Modified) Information Disclosure Statement By Applicant (Use Several Sheets if Necessary)	App. Docket No. AOL0095	Serial No.: Unassigned
	Applicant: Cahill et al Filing Date: Herewith	Group: Unassigned

U.S. Patent Documents

Examiner Initial	No.	Patent No.	Date	Patentee	Class	Sub-class	Filing Date
	A	2002/0087859	7/4/02	Weeks et al	713	156	5/21/01
	B	5,113,522	5/12/92	Dinwiddie, Jr. et al	395	700	5/17/89
	C	5,983,208	11/9/99	Haller et al	705	40	6/17/96
	D	6,401,203	6/4/02	Eigeles	713	156	11/10/98
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	F	6,466,975	10/15/02	Sterling	709	223	1/4/00
	G	6,477,513	11/5/02	Walker et al	705	76	4/3/97
	H	6,477,665	11/5/02	Bowman-Amuah	714	39	8/31/99

Foreign Patent or Published Foreign Patent Application

Examiner Initial	No.	Document No.	Publication Date	Country or Patent Office	Class	Sub-class	Translation	
							Yes	No
	I	1189161	3/20/02	EP	G06F	17/60	X	
	J	1117204	7/18/01	EP	H04L	9/32	X	
	K	1117207	7/18/01	EP	H04L	9/32	X	
	L	1217549	6/26/02	EP	G06F	17/30	X	
	M	1220510	7/3/02	EP	H04L	29/06	X	
	N	1241596	9/18/02	EP	G06F	17/30	X	

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	W	Blaze, M.; Feigenbaum, J.; <u>KeyNote: Trust Management for Public-Key Infrastructures</u> ; AT&T Labs-Research; Keromytis, A.; Distributed Systems Lab, CIS Department, University of Pennsylvania; 1998
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	Z	Molva, R.; Roudier, Y.; <u>A Distributed Access Control Model For Java</u> ; Computer Security - ESORICS 2000. 6th European Symposium on Research in Computer Security. Proceedings (Lecture Notes in Computer Science); 2000
	aa	Li, N.; <u>Local names in SPKI/SDSI</u> ; Proceedings 13th IEEE Computer Security Foundations Workshop. CSFW-13; 2000
	bb	Balfanz, D.; Dean, D.; Spreitzer, M.; <u>A Security Infrastructure for Distributed Java Applications</u> ; Proceeding 2000 IEEE Symposium on Security and Privacy. S&P 2000 September 2001
	cc	Martin, N.; <u>Redrawing the Line Between Content and Commerce</u> ; EContent; September 2001
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	ee	Mitchell, A.; <u>Our Mutual Friends [Affiliate Marketing]</u> ; Internet Business; March 2001
	ff	Lauchlan, S.; <u>Affiliate to Accumulate [Affiliate Networks]</u> ; Business & Technology; July 2000
	gg	Ellison, C.; <u>SPKI Requirements</u> ; Network Working Group, The Internet Society; September 1999

Examiner: Initial citation considered. Draw line through citation if not in conformance and not considered.
Include copy of this form with next communication to applicant.